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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/441,627	11/16/1999	BRIAN E. WILLIAMS	S324-J	4715
7590 07/28/2004		EXAMINER		
BRUCE A JAGGER		ZIMMERMAN, JOHN J		
P O BOX 29000		ART UNIT		
GLENDALE, CA 912099000		PAPER NUMBER		

1775

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/441,627	Applicant(s) WILLIAMS ET AL.	
	Examiner John J. Zimmerman	Art Unit 1775	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-17 is/are pending in the application.
- 4a) Of the above claim(s) 4,5,7-9,13 and 14 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 is/are allowed.
- 6) ☒ Claim(s) 1-3,6,10,12,15 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/18/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

OFFICE ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 14, 2004 has been entered.

2. The amendments to the specification and claims filed July 14, 2004 have been entered. Claims 1-10 and 12-17 are pending in this application.

Restriction Requirement

3. Applicant's election of Group I, Species 2 (claims 6 and 17), in the Response received December 13, 2001 was noted in the previous Office Actions. In view of the election, generic claims 1-3, 12 and 15-16 (claims drawn to no specific compositions) and species claims 6 and 17 (drawn specifically to ceramics) have previously been examined in this ongoing prosecution. An updated search of this application has been made in order to fully address the current claim limitations. The updated search was expanded to encompass metal/ceramic species embodiments (species 6 of the original restriction requirement of June 19, 2001) since the search

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for this species overlapped the search for the originally elected ceramic species (species 2). In view of the above, the examiner has withdrawn the restriction requirement between the species of ceramic (species 2) and metal/ceramic (species 6). Both species (claims 6 and 10) will be examined in this prosecution. Claims 4-5, 7-9 and 13-14 have been withdrawn from consideration at this time as being drawn to non-elected inventions. At this time the generic claims have not been held to be allowable (see the rejections, below) and the restriction was made Final in the prior Office Actions.

4. In view of the above noted withdrawal of the restriction requirement as to the linked species of ceramic and ceramic/metal, applicant is advised that if any claims depending from or including all the limitations of the allowable generic linking claims be presented in a continuation or divisional application, such claims may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Claim Rejections - 35 USC § 102/103

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-3, 6, 12 and 15-16 rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mano (U.S. Patent 6,057,030).

8. Mano discloses a formed in situ (e.g. plasma sprayed - column 9, lines 53-62) skin layer applied directly to a ceramic porous substrate (e.g. see Examples 2-7 and 8-12). The ceramic porous substrate has an open cellular structure produced by incorporating a pore forming polymeric component and thus qualifies as a rigid reticulated foam. The ceramic skin layer of the reference appears to penetrate the ceramic foam at a depth of between about 1 and about 5

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pore diameters (see Figure 7). The ceramic skin layer of the reference appears to penetrate the ceramic foam at a depth of less than about 2 pore diameters (e.g. applicant's claim 12).

Regarding the claim limitation that the skin must have "interconnected porosity", this limitation is verified by the ventilation resistance values of the composites from Examples 2-7 and 8-12 shown in Tables 2 and 3. In addition, the skin layers of Mano are applied by spraying ceramic particles in the same manner suggested by applicant's disclosure and therefore the end result would be expected to be the same. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977). See MPEP 2112 for basis of rejections under 35 USC 102/103 based on inherency and applicant's burden in addressing such rejections. Regarding claims 15 and 16, the ability of the composite of Mano to allow substantially uniform gas flow through the skin and/or allow transpiration cooling would be inherent to the structure of Mano since it is constructed in the same manner as the article disclosed by applicant. There is no indication in Mano that there would be any lack of interconnected pore uniformity in the skin layer that would preclude "substantially uniform gas flow", nor is there any additionally disclosed structural configuration by applicant that would be required to meet the limitation of

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"adapted to allowing transpiration cooling" that would not also be present in the structure of Mano.

9. Claims 1-3, 10, 12 and 15-16 rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Rink (U.S. Patent 5,746,793).

10. Rink discloses a formed in situ (e.g. plasma arc deposition - column 5, lines 23-25) porous skin bonded directly to a reticulated ceramic foam substrate (e.g. see column 4, lines 31-36, lines 53-62, and Figure 9). The particulate skin of the reference appears to penetrate the ceramic foam at a depth of between about 1 and about 5 pore diameters (see Figures 8 and 9). The ceramic skin of the reference appears to penetrate the ceramic foam at a depth of less than about 2 pore diameters (e.g. applicant's claim 12). Regarding the claim limitation that the skin must have "interconnected porosity", this limitation is verified by Figures 8 and 9 and also by the function of the Rink article as a filter. In addition, the skin layers of Rink are applied by spraying particles in the same manner suggested by applicant's disclosure and therefore the end result would be expected to be the same. Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re*

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Best, Bolton, and Shaw, 195 USPQ 431 (CCPA 1977). See MPEP 2112 for basis of rejections under 35 USC 102/103 based on inherency and applicant's burden in addressing such rejections. Regarding claims 15 and 16, the ability of the composite of Rink to allow substantially uniform gas flow through the skin and/or allow transpiration cooling would be inherent to the structure of Rink since Rink is designed as a filter to allow gas flow. There is no indication in Rink that there would be any lack of interconnected pore uniformity in the skin layer that would preclude "substantially uniform gas flow", nor is there any additionally disclosed structural configuration by applicant that would be required to meet the limitation of "adapted to allowing transpiration cooling" that would not also be present in the structure of Rink.

Allowable Subject Matter

11. Claim 17 is allowed because while the art of record shows the use of ceramic foam structures having skin layers, none of the art of record discloses or makes obvious the use of molybdenum disilicide as a skin layer meeting the limitations of this claim.

Response to Arguments

12. Applicant's arguments and amendments to the claims filed July 14, 2004 have been carefully considered.

13. Applicant has amended the elected independent claims to require skin penetration of the substrate to a depth of about 1 to about 5 average pore diameters. As noted in applicant's arguments, Japanese publication 63-2873 does not appear to meet this limitation. Since there

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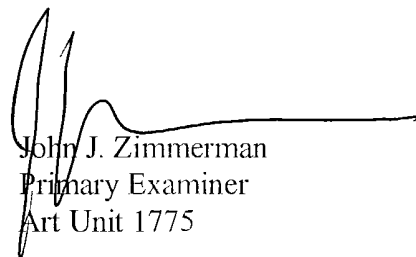
would be no motivation for one of ordinary skill in the art at the time the invention was made to modify Japanese publication 63-2873 to meet this limitation, the rejection applying this reference has been withdrawn. Likewise, applicant has shown adequate support for the use of "inorganic polymers" in claim 3 and the rejection of the claim under 35 USC 112, first paragraph, has been withdrawn. A further updated search has been conducted in order to fully address the current claim limitations. The references of Mano and Rink show that skin penetration of a ceramic foam substrate to a depth of about 1 to about 5 average pore diameters is known in the prior art. Although the Mano reference was previously applied and withdrawn (see the Office Action of February 27, 2002), Mano has been reapplied since a review of Mano shows that there are aspects of Mano that still need to be addressed.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John J. Zimmerman
Primary Examiner
Art Unit 1775

jjz
July 23, 2004